

Specialized Programme on e-Governance Application Development

A. NAME OF INSTITUTE	Centre For Development of Advanced Computing
B. NAME/TITLE OF THE COURSE	Specialized Programme on e-Governance Application Development
C. COURSE DATES WITH DURATION IN WEEKS	From July 28th, 2014 to October 17th, 2014 In weeks: 12 Weeks
D. ELIGIBILITY CRITERIA FOR PARTICIPANTS: 1. EDUCATIONAL QUALIFICATIONS 2. WORK EXPERIENCE required, if any 3. AGE LIMIT 4. Target Group [<i>Level of participants and target ministries/departments etc. may be indicated</i>]	<p>1) Two years Technical Course or Graduate in any stream after 12 years of Schooling. Knowledge of any programming language is desirable</p> <p>2) -----</p> <p>3) -----</p> <p>4) Should meet the above educational requirements and should know English language</p>
E. AIMS AND OBJECTIVES OF THE COURSE	<p><u>Objective:</u></p> <ul style="list-style-type: none"> • To make the participants aware about e-Governance, it's potential benefits, various standards and it's impact towards common man/corporate. • Participants would be made aware of use of various software tools/ programming languages for developing modules of e-Governance Application.
F. MODE OF EVALUATION OF PERFORMANCE OF THE TRAINEE	Lab Work and Project Work

Objective:

At the end of the course, Students will be able to:

- To understand about e-Governance, it's potential benefits, various standards and it's impact towards common man/corporate.
- Participants would be able to make use of various software tools/ programming languages for developing modules of e-Governance Application.

Course Content

1. Introduction to e-Governance

- E-Government : Definition and Scope
- E-Government for Developing Countries
- Potential Benefits of E-Government
- Guidelines for Implementing E-Government Projects
- Impact Assessment of E-Government Projects
- Case Studies in E-Government

2. HTML and JavaScript

- Introduction to HTML tags, Title , Text formatting , Heading style,
- Text Style (Bold, Italic and Underline), List
- Adding graphics to HTML, Tables.
- Link documents, Hyper Link, Frames.
- Java Script in web pages. Conditional checking (if-then-else), Loops, User defined functions, Dialog Boxes.
- Cascading style sheet – Assigning various styles to HTML pages using external style sheets.

3. Introduction to OOAD for Java Developers

4. Fundamental Programming Structures in Java

- The main() method
- Primitive Data Types
- Variables
- Constants
- Assignments
- Initializations
- Operators
- Strings
- Control Flow
- Code Examples & Exercises

5. Classes and Objects in Java

- Classes & Objects
- OOP Principles
 - Instantiation
 - Encapsulation
 - Specialization
- Instance Variables
- Class Variables
- Constructors
- Instance Methods
- Class Methods
- Method Overloading
- The **this** keyword
- Passing and returning objects
- Garbage Collection in Java
- Code Examples & Exercises

6. Object Design and Programming with Java

- Abstraction
- Inheritance
- Polymorphism
- Method Overriding
- Associations
- Delegation

7. Java Interfaces

- Purpose of Interfaces
- When to use them
- Interface Declaration
- Implementing an Interface
- Interface Inheritance

8. Java Exception Handling

- Why Exceptions
- Standard Exception Handling Options
- Exception Class Hierarchy
- Checked vs. Unchecked Exceptions
- Catching an Exception: try and catch blocks
- Methods Which Throw Exceptions: the throws clause
- Handling vs. Declaring Exceptions

- System Exceptions vs. Application Exceptions
- Writing Custom Exceptions

9. Java Collections API

- Arrays
- The Java Collections Framework
- Collections Interfaces
 - java.util.Collection
 - java.util.List
 - java.util.Map
 - java.util.Set
- Concrete Collections
 - java.util.ArrayList
 - java.util.HashMap
 - java.util.HashSet
- Iterating through Collections
 - java.util.Iterator

10. Java Input/Output API

- Streams & Files
- Input & Output Streams
- File Streams
- Object Streams
- Object Serialization
- Readers & Writers
- The Java New I/O API

11. Building GUI applications using Java.awt package

- Event handling
- Event listeners and Event classes
- GUI controls (Layouts)

12. Java Foundation classes (Swings)

13. SQL/PLSQL

- Database Management Concepts
- **SQL:** Create, Alter, Integrity Constraints(Primary Key, NOT NULL, Foreign Key, Unique Key, Check Constraints), Insert
- **SQL:** Select, Update Delete, Drop, Alter, Order by, Group by
- **SQL:** Single Row Function, Group Function, Having
- **SQL:** Index, Sequences, Commit, Rollback, Savepoint
- **PL/SQL:** PL/SQL Block, Variables
- **PL/SQL:** Writing the DML Statement, Cursors
- **PL/SQL:** Triggers, Functions, Packages

14. JDBC

- Introduction to JDBC
- The Java, SQL Package
- Connecting to the Database
- Working with Connections
- Working with Results
- Working with Statements

15. Java Servlets

- Introduction to Servlets
- Java Web Server / Tomcat / Weblogic
- Servlet Navigation
- Server – side includes

16. JSP

- Introduction to JSP
- Difference Between Servlet & JSP
- Basic tag of JSP
- JSP with JDBC
- JSP with JAVA BEAN

17. Overview of Struts Framework

18. Overview of Hibernate

19. Project Work